

SOUTHERN WATERSHEDS COMMON REEDGRASS PROJECT

PROGRESS REPORT

OCTOBER 25, 1993

INTRODUCTION

The Southern Watersheds includes the drainages of the Northwest River, the North Landing River, and Back Bay in the southeastern corner of Virginia. Common reedgrass is an invasive wetland plant which threatens to significantly alter the structure and function of the marshes and other wetlands of the Southern Watersheds. The objectives of this project are to increase public awareness of the common reedgrass problem in the Southern Watersheds, demonstrate effective control of common reedgrass, and encourage measures that prevent common reedgrass from becoming invasive. The project is funded by the United States Environmental Protection Agency, the United States Fish and Wildlife Service, Back Bay Restoration Foundation, and the Virginia Department of Conservation and Recreation. Additionally, fifteen other local, state, federal, and private entities are involved in the project as participants or advisors.

The following account details activities related to the Southern Watersheds Common Reedgrass Project from the period of March 1, 1993, to October 20, 1993.

SITE SELECTION

Twenty units containing stands of common reedgrass were selected on seven managed areas within the Southern Watersheds for treatment: thirteen for aerial application and seven for ground application. A combination of aerial photography, aerial reconnaissance, and ground truthing was used to select and delineate the treatment units according to the criteria set forth in the project proposal. Ground application units ranged from 1/16 to 3/8 acres while the size range for aerial application units was 2 acres to 42 acres. Figures 1 through 6 show the location of the treatment units and Tables 1 and 2 contain size and managed area data for each unit. In addition to the treatment units, two control units were also selected and delineated (see Figures 1 and 5 for location). Control units were selected for their similarity and proximity to the treatment units. The control units were subjected to the same monitoring as the treatment units, but will not be subjected to the herbicide and burning treatments.

MONITORING

Four of the aerial application treatment units (units 1I/J, 2B, 5A, and 6B) were selected for intensive monitoring along with the two control units (C1 and C2). A quantitative vegetation monitoring system designed to document changes in plant species

frequency and density and a permanent photography point were established for each unit monitored. The plant community monitoring plan should be consulted for details as to the design of the monitoring system. Data were collected by Gary Andres, Allen Belden, Caren Caljouw, Kenn Clark, Melissa Donoff, Sandra Erdle, Kevin Heffernan, and Larry Smith in early September. Table 3 shows a summary of the data collection work.

HERBICIDE

Nine of the aerial application units were sprayed via rotary wing aircraft on October 2. The remaining four aerial application units were sprayed with a fixed wing aircraft on October 16. A total volume of five gallons per acres was applied in both instances with two quarts per acre of herbicide and a 1% solution of surfactant. Six of the seven ground application units were treated with a 1% solution of herbicide and a 1/2% solution of surfactant. The seventh ground application unit was not treated due to a temporary lack of the appropriate application equipment. The tall, dense nature of some of the reedgrass stands coupled with the insecure footing necessitated treating them only peripherally. Tables 1 and 2 summarizes herbicide treatment information.

The herbicide used was "Rodeo" brand of glyphosate and the surfactant used was "Timberland-90." The helicopter used a thirty foot microfoil boom with .035 inch comb-type wedge nozzles; the airplane used a thirty foot agricultural boom and agricultural nozzles configured for low drift application. Helicopter application was performed by Jay Allison of Helicopter Applicators, Incorporated, from Frederick, Maryland. Airplane application was performed by Peter Cummings of Spraying Specialists from Virginia Beach, Virginia. In both cases, the aircraft sprayed at an altitude of 20 to 40 feet resulting in a 40 to 45 foot spray swath. Ground application equipment consisted of motorized and hand-pumped backpack sprayers. Ground applicators were Caren Caljouw, Kenn Clark, and Joe McCauley.

BURNING

Because completion of site selection, monitoring, and herbicide operations were the priorities, little work has been done to date on the controlled burning aspects of the project. With the completion of site selection, monitoring, and herbicide application, planning and implementation of controlled burning of the treatment units will begin.

PUBLIC EDUCATION INITIATIVES

Work is currently underway to produce a common reedgrass fact sheet, a brochure on this project, and two table-top displays on common reedgrass. The fact sheet and brochure are expected to be completed by the end of November with the table-top displays becoming available for use shortly thereafter.

PROJECT COSTS

For the period of March 1, 1993, through October 20, 1993, project financial expenditures have remained well within the projected figures. The average cost of aerial herbicide application including application fees, chemicals, and staff time for supervising spray operations was calculated at \$57 per acre. The cost of ground application including chemicals and staff time for application was \$187 per acre.

Department of Conservation and Recreation-Division of Natural Heritage staff have spent approximately 2.5 times the number of person-hours projected for the March 1 through October 20 period. This figure does not include person-hours spent by other project participants and cooperators which would increase the total number of person-hours spent by up to 25%.

TABLE 1 - AERIAL HERBICIDE APPLICATION

UNIT	DATE TREATED	MANAGED AREA	SIZE	AMOUNT RODEO	AMOUNT TL-90	DCR-DNH TIME
1A	10/2/93	BBNWR	21	10.5	1.05	0.5
1D	10/2/93	BBNWR	4	2	0.2	0.25
1G/H	10/2/93	BBNWR	23	11.5	1.15	0.25
1I/J	10/2/93	BBNWR	12	6	0.6	0.25
1K	10/2/93	BBNWR	42	21	2.1	0.5
1L	10/16/93	BBNWR	2	1	0.1	0.25
2A	10/16/93	FCSP	5	2.5	0.25	0.25
2B	10/16/93	FCSP	5	2.5	0.25	0.25
2C	10/16/93	FCSP	6	3	0.3	0.25
3A	10/2/93	PAWMA	4	2	0.2	0.25
5A	10/2/93	NLRP	12	6	0.6	0.25
6A	10/2/93	NLRNAP	40	20	2.0	0.5
6B	10/2/93	NLRNAP	4	2	0.2	0.25
TOTALS:			180	90	9.0	4.0

KEY TO TABLE:

UNIT: treatment unit designation, see Figures 1-6

DATE: date unit was sprayed

MANAGED AREA: site upon which unit occurs - BBNWR = Back Bay National Wildlife Refuge, FCSP = False Cape State Park, PAWMA = Princess Anne Wildlife Management Area, NLRP = North Landing River Preserve (TNC), NLRNAP = North Landing River Natural Area Preserve (DCR)

SIZE: size of unit in acres

RODEO: amount of herbicide Rodeo applied to unit in gallons

TL-90: amount of surfactant TL-90 applied to unit in gallons

DCR-DNH TIME: amount of DCR-DNH staff time spent supervising spray operation; does not include travel, planning, or prep time or time of other cooperators

TABLE 2 - GROUND HERBICIDE APPLICATION

UNIT	TREATMENT DATE	MANAGED AREA	SIZE	RODEO	TL-90	TIME	COMPLETE/ PERIPHERY
1M	9/29/93	BBNWR	1/4	9.3	4.25	3	C
2D	10/3/93	FCSP	1/8	4.6	2.1	3	C
2E	10/3/93	FCSP	1/8	4.6	2.1	3	C
5B	9/30/93	NLRP	1/16	2.3	1.1	1	C
7	9/30/93	ICW	1/4	9.3	4.25	1.5	P
7	10/4/93	ICW	3/8	14.0	6.37	3	P
8	10/4/93	NWRP	1/16	2.3	1.1	1	C
-----			-----				
TOTALS			1.25	46.4	21.27	15.5	
NOT SPRAYED:							
1N	--	BBNWR	1/4	-	-	-	-

KEY TO TABLE:

UNIT: designation of ground application unit; see Figures 1 - 6
DATE: date treated with herbicide
MANAGED AREA: site upon which unit occurs; BBNWR = Back Bay National Wildlife Refuge, FCSP = False Cape State Park, NLRP = North Landing River Preserve (TNC), ICW = Intracoastal Waterway, NWRP = Northwest River Park
SIZE: approximate size of unit in acres
RODEO: amount of herbicide Rodeo applied to unit in ounces
TL-90: amount of surfactant TL-90 applied to unit in ounces
TIME: time for Caljouw, Clark, and McCauley to prep, mix, apply, and clean-up; does not include planning, logistical, or travel time
COMPLETE/PERIPHERY: whether the entire stand of reedgrass was sprayed or just the periphery

TABLE 3 - SUMMARY OF PLANT COMMUNITY MONITORING

UNIT	DATE	# PLOTS	MAX RICHNESS	MAX DENSITY	TIME
C1	9/7/93	50	13	72	34
C2	9/2/93	50	9	138	17.5
1I/J	9/7/93	50	13	82	12
2B	9/9/93	51	13	67	15
5A	9/2/93	50	14	87	20
6B	9/2/93	50	11	112	17.5

KEY TO TABLE:

UNIT: designation of unit

DATE: date data was collected from unit

#PLOTS: number of sampling plots in unit

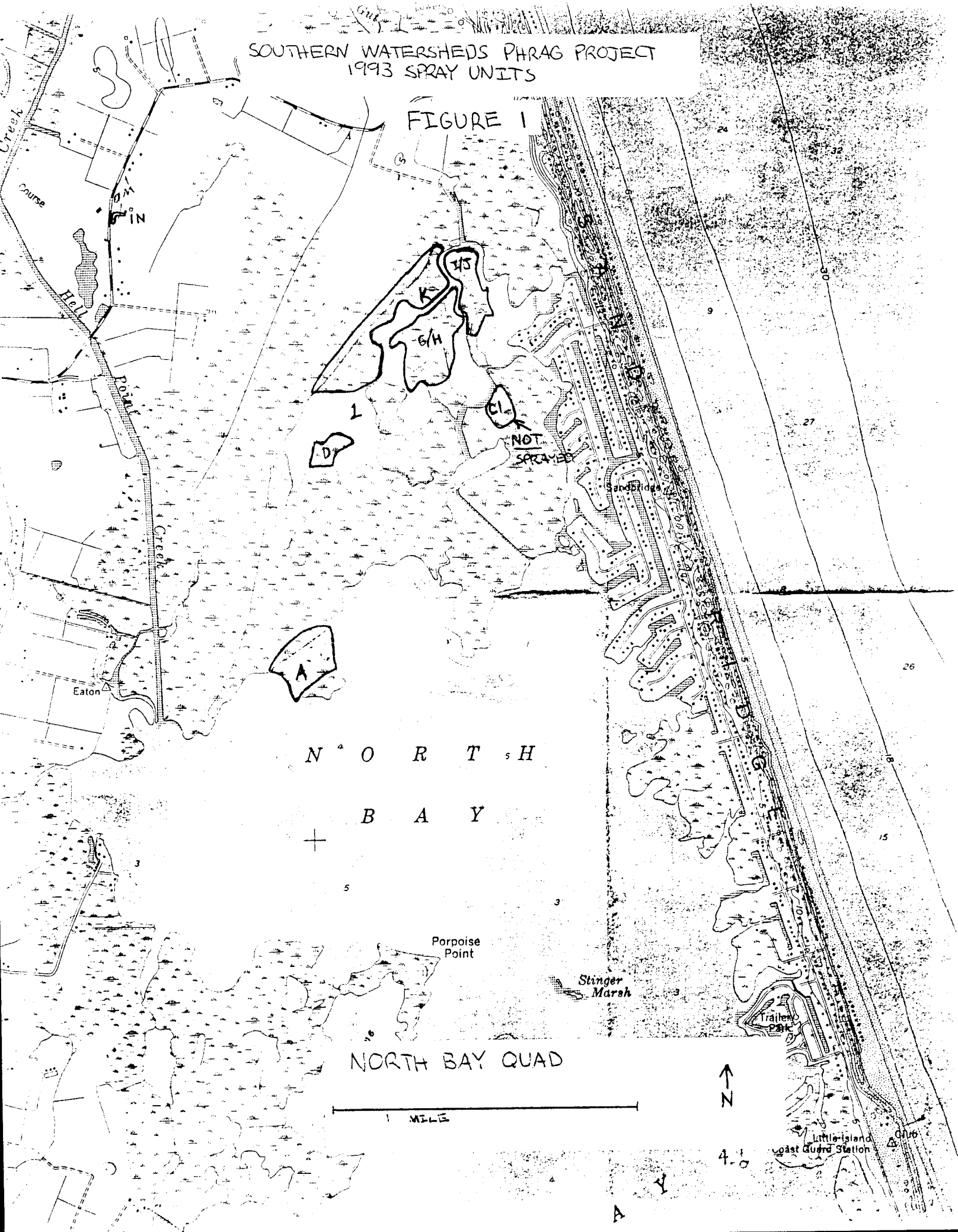
MAX RICHNESS: the maximum number of species found in any one of the one square meter plots in that unit

MAX DENSITY: maximum density of common reedgrass stems in sampling plots of that unit in stems per square meter

TIME: person-hours required for collection of data in that unit; does not include planning, preparation, or travel time

SOUTHERN WATERSHEDS PHRAG PROJECT
1993 SPRAY UNITS

FIGURE 1



SOUTHERN WATERSHEDS PHRAG PROJECT
1993 SPRAY UNITS

NORTH BAY QUAD

1 MILE



FIGURE 2

REFUGE

Shell Point

SAND

FLATS

• INTERIOR—GEOLOGICAL SURVEY, RESTON, VIRGINIA—1986

23

26

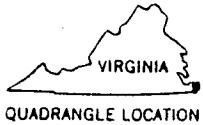
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ROAD CLASSIFICATION

- Heavy-duty ————— Light-duty —————
- Medium-duty ————— Unimproved dirt - - - - -
- U. S. Route (shield symbol) State Route (circle symbol)

1 MILE
5000 6000 7000 FEET
1 KILOMETER

ET
OF 1929
IS MEAN LOW WATER
S IS VARIABLE
OF MEAN HIGH WATER
IN INLAND WATERS



NORTH BAY, VA

36075 53 15 004

SOUTHERN WATERSHEDS PHRAG PROJECT
1993 SPRAY UNITS

KNOTT'S ISLAND QUAD

2B

South Inlet

2C

1 MILE



FIGURE 3

Spratts Cove

Hammet Cove

Cowpen Cove

False Cape

False Cape Landing

Big Island

Tripps Cove

Little Ball Island

4052

11000 FEET (VA.)

4051

4050

4049

4048

4047

N

T

I

C

HORSE BALL

4053000m N.

1993 SPRAY UNITS

KNOTT'S ISLAND QUAD

1 MILE

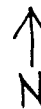


FIGURE 4

B
A
C
K

4052

Campbell
Landing

4051

1 050 000 FEET
(N. C.)

Devil Creek

4050

Carol
Pond

4049

35'

Pellitory
Point

4048

Public
Landing

4047

57 11 SE
REEDS

Simpson
Island



FIGURE 5

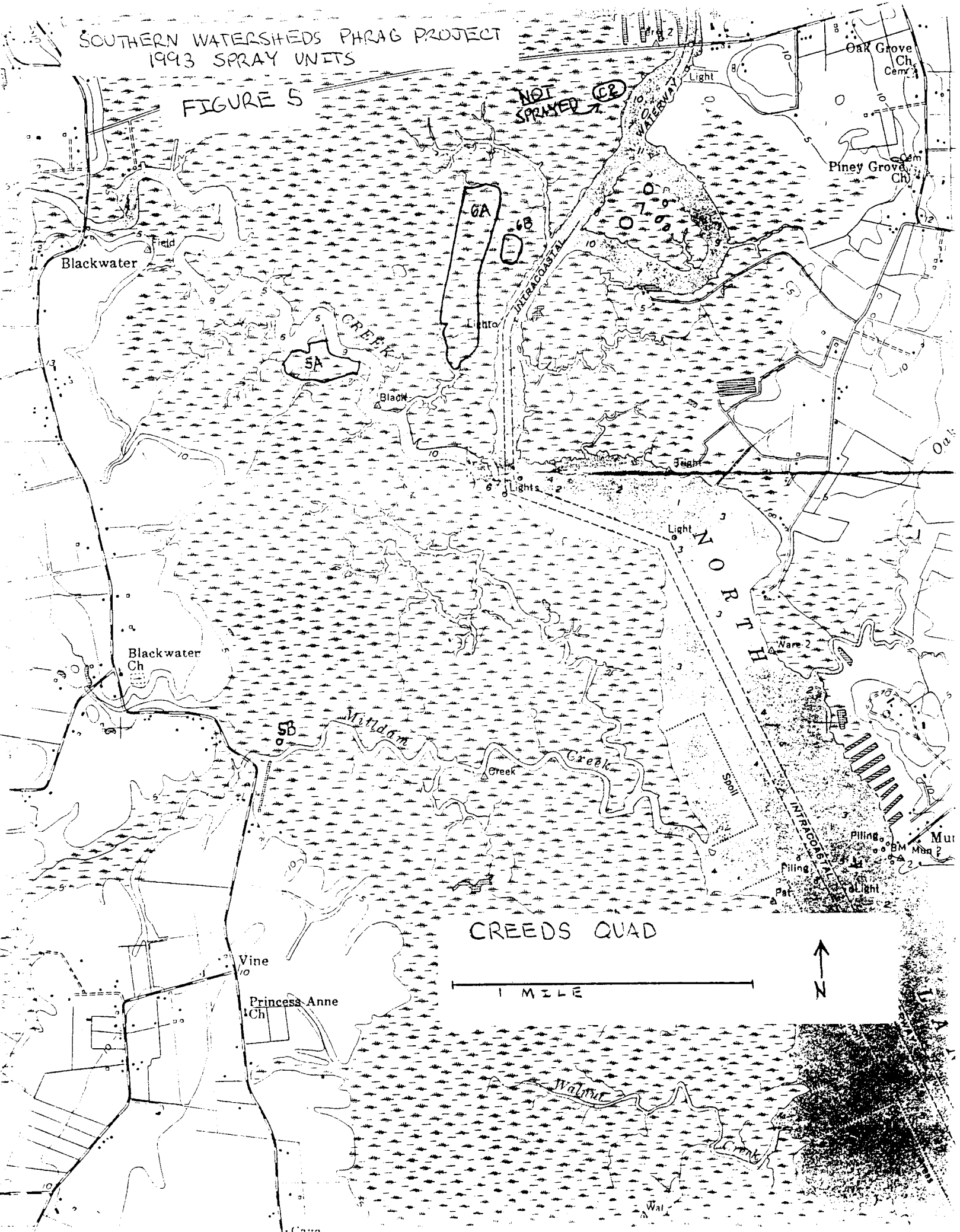
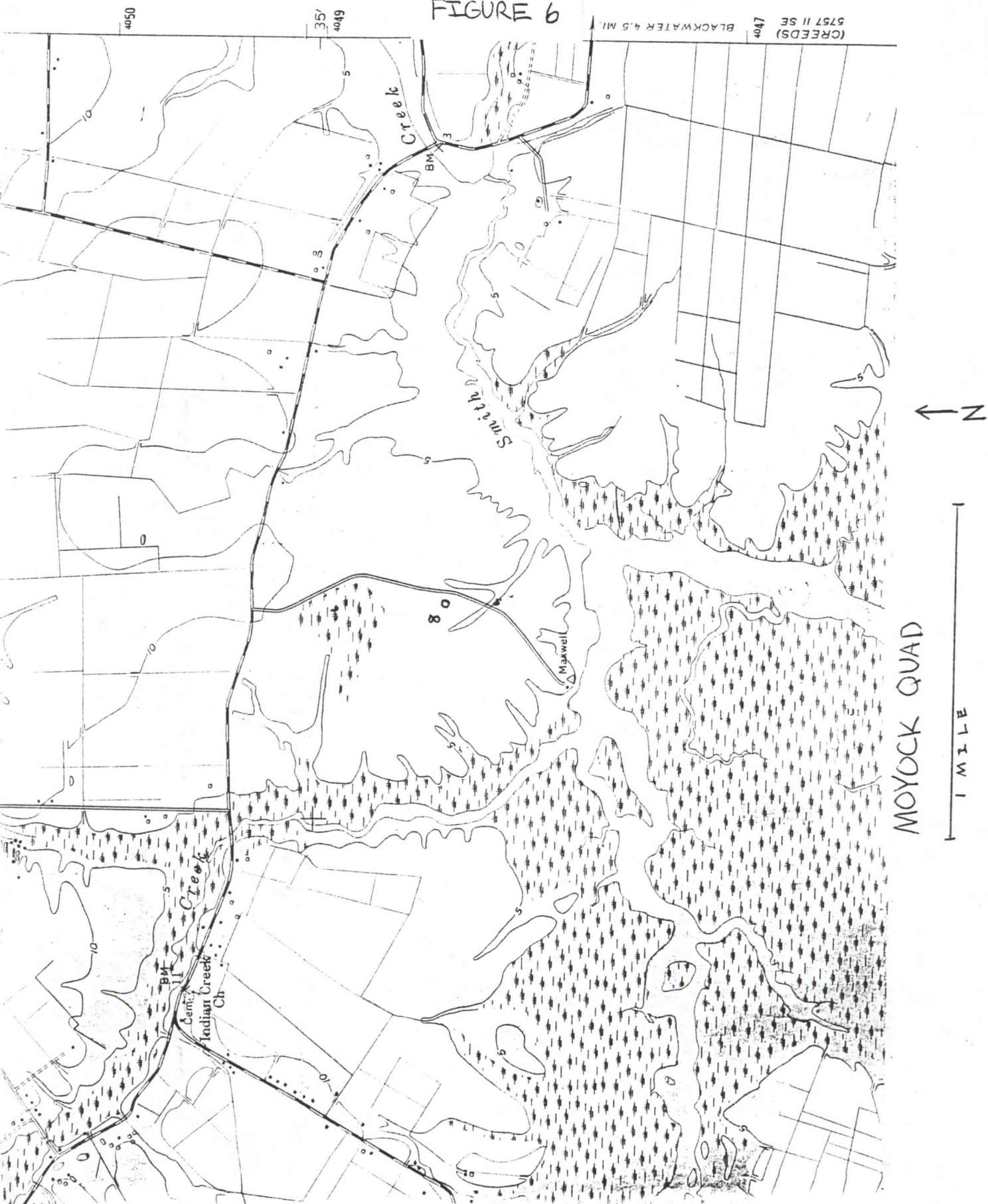


FIGURE 6



COMMON REEDGRASS CONTROL SITES

- ① BACK BAY NATIONAL WILDLIFE REFUGE
- ② FALSE CAPE STATE PARK
- ③ LITTLE ISLAND PARK
- ④ PRINCESS ANNE WILDLIFE MANAGEMENT AREA
- ⑤ NORTH LANDING RIVER PRESERVE
- ⑥ NORTH LANDING RIVER NATURAL AREA PRESERVE
- ⑦ INTRA COASTAL WATERWAY
- ⑧ NORTHWEST RIVER PARK

SOUTHERN WATERSHEDS

